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December 10, 2009

Marlene H. Dortch
Secretary
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20554

Re: *Amendment of Part 27 of the Commission's Rules to Govern the Operation of Wireless Communications Services in the 2.3 GHz Band* (WT Docket No. 07-293) and *Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band* (IB Docket No. 95-91)

NOTICE OF ORAL EX PARTE PRESENTATION

Dear Ms. Dortch:

I am writing pursuant to Section 1.1206(b)(2) of the Commission's Rules to notify the Commission that yesterday, Jennifer McCarthy of NextWave Broadband, Inc., Kurt Schaubach of the National Rural Telecommunications Cooperative, Ron Olexa of Horizon Wi-Com, Mary O'Connor of Wilkinson Barker Knauer, and I met on behalf of the WCS Coalition with Monica Desai, Richard Arsenault, and Linda Chang of the Wireless Telecommunications Bureau, to discuss the history and issues pending in the above-referenced proceedings regarding the coexistence of Satellite Digital Audio Radio Service terrestrial repeaters and Wireless Communications Service ("WCS") broadband systems in the 2305-2360 MHz band. The parties discussed the timeline to deployment of mobile broadband services following the adoption of new rules, and noted that delays will be unavoidable if those rules impose more stringent limits on out-of-band emissions than proposed by the WCS Coalition. The WCS Coalition also distributed the attached documents during the meeting.

Pursuant to Sections 1.1206(b)(2) and 1.49(f) of the Commission's Rules, this letter is being filed electronically with the Commission via the Electronic Comment Filing System. Should you have any questions regarding this presentation, please contact the undersigned.

Respectfully submitted,

/s/ Paul J. Sinderbrand

Paul J. Sinderbrand
Counsel to the WCS Coalition

cc: Monica Desai
Richard Arsenault
Linda Chang

Attachments

Amending Parts 25 and 27 to Promote WCS and DARS Coexistence

Presentation by the WCS Coalition
December 9, 2009

Executive Summary

- The Commission was prepared to adopt a *Report and Order* at its December 2008 open meeting that would have permitted practical use of the WCS spectrum to meet the growing demand for mobile broadband. Since that meeting was cancelled, WCS demonstrations performed in Ashburn, VA before FCC staff and Sirius XM validated the WCS Coalition's engineering analyses and exposed the underlying flaws in Sirius XM's prior work.

WCS/DARS History

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009

DARS and WCS services are created simultaneously

The FCC makes clear that neither side will receive absolute interference protection:

"In authorizing DARS, it was our desire to ensure a high quality radio service. However, a desire for an interference-free radio service must be balanced with the need to provide reasonable operating parameters for adjacent services. Accordingly, *our intention in determining out-of-band emission limits for WCS spectrum into spectrum used by DARS has been to limit the potential for interference to a reasonable level – not to provide a pure, interference-free environment*."

Amendment of the Commission's Rules to Establish Part 27, the Wireless Communications Service ("WCS"), Memorandum Opinion and Order, 12 FCC Rcd 3977, 3991 (1997).

WCS/DARS History

FCC adopts DARS service rules

Just prior to the WCS auction, the FCC adopts DARS service rules and acknowledges that:

"some satellite DARS applicants intend to implement, as necessary, terrestrial repeaters, or 'gap-fillers', in urban canyons and other areas where it may be difficult to receive DARS signals transmitted by a satellite."

DARS Order and FNPRM, 12 FCC Rcd at 5810-12.

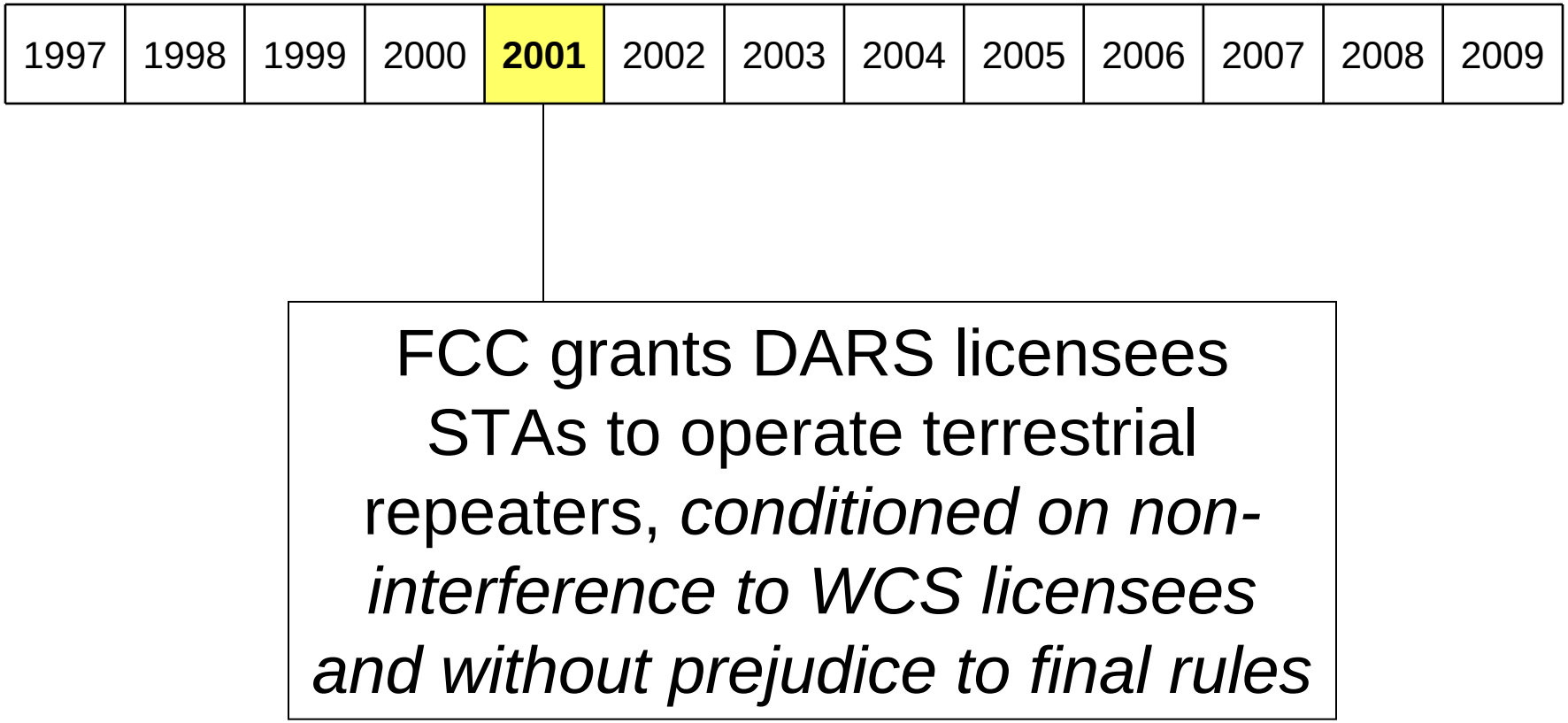
WCS/DARS History

Gap-fillers Morph Into High-Power Stations

SDARS licensees submit technical information for the first time that discloses the intent to deploy high-powered repeaters that would cause harmful interference.

WCS licensees respond with extensive analysis illustrating the WCS will suffer harmful interference if DARS is permitted to operate high-powered repeaters.

WCS/DARS History



WCS/DARS History

WCS and DARS file rule proposals

On December 18, 2007 the Commission releases the *Notice of Proposed Rulemaking and Second Further Notice of Proposed Rulemaking* for WT Docket No. 07-293 and IB Docket No. 95-91

Commission poised to adopt final rules facilitating mobile broadband at December 2008 open meeting

WCS Base Station Power Compromise

WCS is proposing a compromise limit on transmit power for WCS base stations and DARS repeaters of 2,000 watts average EIRP and 400 watts average EIRP per 1MHz.

- At least 6 dB more power than WCS had previously advocated.
- WCS proposes the same 13 dB maximum peak-to-average power ratio adopted for 700 MHz, PCS and AWS-1 (DARS currently operates with 6-7 dB PAR).
- Adoption of WCS proposal reduces (but does not totally eliminate) overload problem by equalizing power levels among all licensees.

Grandfathering of High-Powered Repeaters

Adoption of DARS grandfathering proposal means interference to WCS as consumer broadband services are deployed.

High powered repeaters can be grandfathered **if they continue to be conditioned on non-interference to future WCS operations.**

WCS Mobile OOBE Limits Are Excessive

- Current mobile limits were adopted in a vacuum and were based on “worst case” assumptions because WCS or DARS technologies had not been identified.
- WCS accepts Sirius’ proposed 75 + 10 log (P) mask for DARS transmitters and WCS base stations.
- Current WCS OOBE limits on mobile devices are unnecessarily strict, and are so much more restrictive than those adopted for other services and in other countries that retention will deprive Americans of the full benefits of 4G economies of scale and scope.
  - For a 2 watt EIRP mobile WCS transmitter, the current 110 + 10 log (P) mask exceeds that which is required to protect a DARS receiver by a margin of 55 dB.

WCS Compromise Spectral Mask

- Less restrictive mask only available for: (a) battery-operated user stations transmitting at no greater than 250 milliwatts average EIRP on A and B Blocks; (b) battery operated user stations transmitting at no greater than 50 milliwatts/1 MHz average EIRP between the 2315-2318 MHz and 2347-2350 MHz portions of the C and D Blocks; (c) battery operated user stations transmitting at no greater than 30 milliwatts/1 MHz average EIRP between the 2318-2320 MHz and 2345-2347 MHz portions of the C and D Blocks; and (d) AC-operated user stations transmitting at no greater than 2 Watts average transmitter output power.
- Less restrictive mask only available if device incorporates transmitter power control.
- Minimum OOBE attenuation for user stations subject to less restrictive mask:

  55 + 10 log (P) on first 4 MHz of DARS band
  61 + 10 log (P) on next 4 MHz of DARS band
  67 + 10 log (P) in center 9 MHz of DARS band

The Sun, The Moon And The Stars Must Align For Interference To Occur

- The risk of OOBE interference from a WCS mobile to a DARS receiver is probabilistic
  - Are WCS device and DARS receiver in close proximity?
  - Is WCS device transmitting?
  - Is the DARS device receiving?
  - At what power is WCS device transmitting?
  - Are there obstructions between transmitter and receiver?
  - Do WCS antenna and DARS antenna have high degree of mutual coupling?
  - Are both devices stationary?
  - What frequency block is WCS transmitting on?
  - What service is the DARS receiver subscribed to?
  - Is DARS receiver served by terrestrial repeater?

Ashburn Demonstration Proves WCS And DARS Can Co-Exist

- The WCS demonstration proved that, using commercially available international equipment, there will be little or no muting of the DARS signal under WCS Coalition's proposal.
- The WCS Coalition replicated worst-case "real-world" scenarios and, as predicted, DARS service did not suffer harmful interference.

Test #	WCS Frequency Block	SDARS Service		SDARS Device		Application Type			Positioning of WCS Device			WCS Device Tx Power		Results
		Sirius	XM	OEM	After-Market	High Bandwidth Upload	High Bandwidth Download	VoIP	Lap Height	Ear Height	Dashboard Height	Fixed EIRP +24 dBm	Variable EIRP with TPC	
	A-Block (Upper)	X		X		X			X			X		No muting
2		X			X			X		X		X		No muting
3			X		X	X			X			X		
4			X		X			X		X			X	
5			X		X		X				X	X		
6			X	X			X				X	X		
7			X	X		X			X				X	
8			X	X				X		X		X		
9	B-Block (Lower)		X	X				X		X		X		
10			X		X		X				X	X		
11		X			X	X			X			X		No muting
12		X			X			X		X			X	
13		X			X		X				X	X		
14		X		X		X			X				X	
15		X		X			X				X	X		
16		X		X				X		X		X		
17	D/A-Block	X			X		X				X	X		
18		X		X				X		X		X		
19			X		X		X				X	X		
20			X		X	X			X				X	No muting
21			X		X			X		X		X		
22			X	X		X			X				X	One short mute
23			X	X			X				X	X		
24			X	X				X		X			X	No muting
25	B/C-Block		X		X		X				X	X		
26			X	X				X		X		X		
27		X			X			X		X		X		
28		X			X		X				X	X		
29		X			X	X			X				X	No muting
30		X		X				X		X			X	
31		X		X		X			X			X		No muting
32		X		X			X				X		X	

DARS Overstates Interference Risk

- Matrix assumed away many variables favorable to WCS, and tests focused on the combinations most likely to result in muting.
- Most WCS Coalition demonstrations performed with power fixed at 250 milliwatts, rather than using transmit power control.
- Several WCS Coalition demonstrations performed with less than the 55+10 log (P) attenuation at 2320/2345 MHz and still little muting was found.

DARS had claimed that "…the WCS licensees' proposed out-of-band rules *would completely silence huge numbers of satellite radio receivers in typical operational setting[s]*."

The Ashburn demonstrations prove this statement to be false.

Nothing Proposed By The WCS Coalition Alters AFTRCC's Current Protection

- AFTRCC fully participated in 1997 proceeding in which WCS was created as a fixed and *mobile* service. WCS Coalition is NOT proposing any change in nature of proposed service
- The WCS Coalition is NOT proposing any change in the OOBE limits that have been in place since 1997 at upper and lower WCS band edges, 2305 MHz and 2360 MHz.

Conclusion

- Despite the reams of paper filed by DARS and Sirius XM's delaying tactics, the record before the Commission establishes that operation of WCS equipment pursuant to the WCS Coalition's proposed rules will not cause harmful interference to DARS customer equipment.
- If the unduly restrictive OOBE limits protecting DARS are loosened as proposed, WCS can quickly leverage international equipment to become a viable source of broadband service.

WCS/DARS BANDPLAN